



Master's Studies 2015/2016

Innovate Yourself at KTH





Prof. Peter Gudmundson

President, KTH Royal Institute of Technology

“Welcome to KTH, an illustrious university with a history of talented researchers and academics, state-of-the-art facilities and pioneering ideas dating back to 1827. All of these elements continue to contribute to advancements here, and more importantly, to positively impacting industry and society as a whole. Our extensive international student body and partner universities ensure that Master’s students will find an inspiring and creative environment at KTH – one with a global perspective that is committed to helping them explore the potential of their chosen field. I’m proud to be part of such an outstanding institution.”

Peter Gudmundson

A Brighter Tomorrow Begins Here

KTH Royal Institute of Technology has served as one of Europe's key centres of innovation and intellectual talent for almost two hundred years. Recognized as Sweden's most prestigious technical university, KTH is also the country's oldest and largest. With over 18,000 students and a global reputation for excellence, the university continues to nurture the world's brightest minds, helping to shape the future.

Master's programmes cover nine fields of study with over fifty degrees available. Taught in English, these programmes allow students to advance in their studies, in a diverse environment with world-class facilities. KTH has a large international student body and emphasises the practical industrial applications of knowledge, incorporating the university's

close ties with industry leaders. This unique approach to learning means that Master's students can look forward to exciting career prospects with an internationally recognized degree.

With a strong history of groundbreaking research, KTH provides one third of Sweden's technical and engineering research at university level. The university also secures substantial funding every year with grants from important organizations like the European Research Council, and plays a central role in the newly formed European Institute of Innovation and Technology (EIT). Master's students will join over 2,000 people engaged in research at KTH and find a multitude of opportunities to grow in their individual areas of focus.

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Master's Studies

Architecture and Civil Engineering

The field of Architecture is concerned with the engineering, design and analysis of buildings, while Civil Engineering is devoted to techniques for designing, constructing and maintaining roads, railway tracks, bridges and tunnels. Both areas depend on the successful integration of the latest technology with the goal of societal improvement.

Electrical Engineering

Electrical Engineering is a discipline that has had a huge impact on the technologies that define modern-day life and society. KTH has a strong reputation for innovative research in this field and offers students the opportunity for study and research in a wide variety of subjects, including wireless systems, electric power engineering, smart networks, integrated circuits, embedded systems, systems engineering, space physics, fusion and networked services.

Engineering Physics and Mathematics

Engineering Physics involves a profound knowledge and understanding of physics, as well as experience with analytical and computational tools. Mathematics furthers knowledge of mathematical concepts and methods that are fundamental to many technical and scientific subjects. Both areas allow the student to customize their selections depending on individual career objectives.

Energy and Sustainable Development

Both Energy and Sustainable Development are of increasing global importance, and KTH is a leader in these burgeoning fields. Programme focus can range from nuclear and environmental engineering, sustainable technology, energy innovation, to those involving the field of Life Science Technology.

Industrial Management and Innovation

This is a collection of programmes for those who wish to take leadership positions in industrial and technology-based organizations. Courses can focus on management, entrepreneurship and the economics of growth – from the industry, functional and individual levels – to management and engineering of energy and environment.

Master's Degree Overview

KTH offers Master's students nine fields of study and over fifty degree programmes within those fields to choose from. Master's degrees last for two years, are taught in English and prospective students must have a completed Bachelor's degree for admission. KTH is an advocate of an interdisciplinary approach to education – encouraging students to incorporate other platforms and areas, if necessary, to help achieve their degree aims. Lectures and studies typically last for one and a half years, with six months devoted to writing a degree project. With KTH's

emphasis on applied knowledge, many Master's students will have the opportunity to collaborate with industry leaders throughout the duration of their degree. The university also provides unique Joint Master's programmes, which allows students to earn a concurrent second degree at a partner university. The application for regular Master's programmes starting in 2015 is open from mid October 2014 until mid January 2015. Separate application procedures and deadlines apply to the Joint Master's programmes.

KTH on Facebook and Twitter:

www.facebook.com/KTHinternational
www.twitter.com/KTHuniversity

Information and Communication Technology

A recognized leader in this field, KTH offers a full range of Information and Communication Technology and Computer Science programmes, from focus on software engineering, theory construction, media technology, computerized implementation and simulation, to associated enabling technologies.

Life Science Technology, Chemistry and Chemical Engineering

The field of Life Science Technology, Chemistry and Chemical Engineering can involve a large selection of programmes, across multiple platforms of study. This is an interdisciplinary area that can include courses in engineering, computational chemistry, environmental biotechnology, medical engineering and more, depending on the student's individual area of focus.

Materials Science and Engineering

Materials Science and Engineering draw on materials design, engineering and nanotechnology among other areas. The latter emphasises microelectronics and photonics, specialization in materials chemistry, biomedical applications or basic materials physics. KTH has a strong track record of successfully integrating both of these fields with business and industry.

Mechanical Engineering

KTH offers a variety of programmes that inhabit the field of Mechanical Engineering, these can include aerospace engineering, integrated product design, naval engineering and sustainable technology. Mechanical Engineers are always in demand and KTH is internationally recognized, providing exceptional career opportunities for those focusing in this area.

Joint Master (Erasmus Mundus)

This prestigious EU initiative encourages partnerships between some of the best facilities in Europe, giving students the chance to explore the potential of their chosen field with an international focus on academic excellence. The Joint Master programmes are offered by a select group of partner universities and include studying in at least two European countries leading to a double or joint degree.

European Institute of Innovation and Technology (EIT)

The European Institute of Innovation and Technology (EIT) is a highly regarded EU organization designed to encourage the best education, research and entrepreneurial opportunities for top universities and their students. KTH offers Joint Master's programmes in Information and Communication Technology (EIT ICT Labs) and Sustainable Energy (KIC InnoEnergy), providing an exceptional technical and entrepreneurial education that includes studies in at least two European countries and leads to a double degree. Internships are integrated in the two-year study period, which allows students to actively take part in projects and gives them the opportunity to build strong corporate networks.

Nordic Master

The Nordic Master's programmes are jointly offered by Nordic universities with a strong reputation and long-standing tradition of education and research. During the two-year programme, students will study at one of the partner universities. Nordic Five Tech is a higher education network that includes the five leading Nordic technical institutions of Denmark (DTU), Finland (Aalto), Norway (NTNU) and Sweden (Chalmers and KTH). They offer a portfolio of joint Master's programmes with the Nordic Master Programme label.



»The focus at KTH is much more about group work and practice, rather than just theory.«

Life in Stockholm – A Student’s Perspective

An interview with Bingcheng Yan, Master’s student in Project and Operational Development at KTH.

Originally coming from the Jilin province in north-east China, Bingcheng has settled into Stockholm and her Master’s programme with relative ease, enjoying the international flavour and benefits of living in one of Europe’s most revered capitals. “Some of the best things for me about Stockholm are the most obvious – the beautiful, clean environment and the city’s facilities are excellent. I also really like the general feeling of Swedish culture and the people. They’re educated, open and very friendly.”

When asked if it was a difficult cultural transition coming from China to Stockholm, Bingcheng is enthusiastic about how helpful KTH were regarding the move. “The University were very supportive in answering questions and offering help when I arrived, and I felt

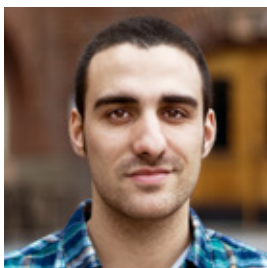
at home quite quickly. The biggest adjustment came from getting used to Swedish food, which I now love. But, Stockholm is very multicultural so I could find Chinese supermarkets in the city without any problem.” As for the differences in the educational system, she is very clear about the stark contrasts from her home country: “For a start, I have people from at least twenty different countries in my class, and the focus at KTH is much more about group work and practice, rather than just theory. Theory is important too, but you have to see the results of your work to understand and grow.”

Regarding free time, Bingcheng was able to find work in the city, expand her language skills and meet new people at the same time. “I found a part-time job

in Stockholm, working in a restaurant as a waitress, not only for the salary but also for the experience. I learned some basic Swedish while working and met more friends, extending my social life. KTH also holds a lot of activities. For example, I joined the Nobel Nightcap last year (the after-party celebrating the Nobel Prize); it was fantastic to work with such nice people and contribute to such an important event. I’ve also been really lucky because I live in student accommodations which KTH provide, so I have some really nice neighbours and we always hang out together.”

As for her plans for the future, Bingcheng is looking to stay in Stockholm and is unreserved in her praise for both KTH and the city: “I have already recommended to my friends that KTH is the perfect place for Master’s studies – it has great facilities, an excellent reputation and Stockholm is such a fantastic city.”

KTH and Stockholm – What’s it Like?



How was your arrival at KTH? Was it difficult getting settled in?

“The first week at KTH was perhaps the moment when I realized that studying here was the best decision I could have made. The Master’s introduction programme is a great way to discover Stockholm and its beauty, and become oriented in the services and places the university has to offer. Those friends that I met during that time are still my best friends here in Stockholm! For this reason I suggest to every new Master’s student to take part in the introduction week in order not to miss this opportunity.”

Daniel Curtis De Groot, Master’s student in Vehicle Engineering



Was KTH a good choice for you, academically and culturally?

“I feel very happy about choosing KTH for my studies. The KTH ‘tag’ itself marks its own identity all over the world, which is one of the best things about being a student here. And the experience of interacting, studying and living with other students from every corner of the world is one of the best that you will ever have in your life.”

*Srinivasa Rao Cheerla, Master’s student in Turbomachinery Aeromechanics
– An Erasmus Mundus Programme*



What are some of your favourite things about Stockholm?

“I love walking through Stockholm, which is an old city, and the closeness to water is lovely; there are so many beautiful buildings and there are always things happening like theatre shows, concerts, art fairs etc. And Sweden has four proper seasons, there’s a lot to enjoy all year. A fantastic place.”

Maja Finnveden, Master’s student in Macromolecular Materials



Has Stockholm lived up to your initial expectations?

“Absolutely, the city is just amazing! I doubt that you can find such a beautiful city, with such a magnificent landscape and beautiful people, in any other part of the world. You can walk from a club and in 10 minutes you will be at the beach or in the middle of a forest. It is also a very international city. When you walk in Stockholm, you can hear different languages all the time, and you meet people from every corner of the world which means you will never get bored.”

*Leo Yang, Master’s student in Turbomachinery Aeromechanics
– An Erasmus Mundus Programme*

Follow our Master’s Bloggers, ask questions to current Master’s students and more at: www.kth.se/en

»We are in a unique and strong position at KTH to offer Master's students a well-rounded understanding of the many integrated levels in this complex field«



A Holistic Approach to Global Challenges

An interview with Semida Silveira, Professor in Energy Systems Planning and Head of Energy and Climate Studies (ECS) at KTH.

“The big challenges we currently face on the planet – climate change, resource scarcity and the need for affordable, sustainable energy require a much broader spectrum of learning and skills than were previously necessary,” says Professor Silveira. “We are in a unique and strong position at KTH to offer Master's students a well-rounded understanding of the many integrated levels in this complex field.” Energy technology and sustainable development are now terms that incorporate a myriad of educational possibilities and disciplines. No longer the province of only technical engineers, these ever-evolving areas now need individuals that can work in multiple environments – from industrial engineering to consultancy, financial markets and policy formation.

“It is well known that we need to find comprehensive models for moving beyond fossil fuels. We have the technological know-how, but it requires much more than that to implement effective long-term solutions for our current energy needs. My hope is through the new ideas and innovations that often come from students. They bring next-generation ideas to the table; I'm very excited and encouraged by what I see in my department and others at KTH. This is the way forward.”

Research projects span the globe and incorporate some of the world's largest international brands. Recent activities include the development of groundbreaking smart grid systems for urban environments, joining top Brazilian universities and partners like Volvo

and Saab. These initiatives will potentially inform how we live in the future. Another example involves long-term strategies for developing countries like Indonesia to better integrate biofuel into their energy requirements – whilst simultaneously allowing for the creation of new industries and maintaining food security objectives. Each of these projects uses a multi-tiered approach to problem solving and the implementation of new innovations.

“We are in a good position at KTH, because Master's students are able to bridge their learning into so many departments and organizations right from the beginning – not just in industry, but within global governmental organizations, municipalities, and in educational and research platforms; students work on solving concrete problems, and that really is the heart of what engineering is about, in all of its manifestations.”

Energy and Sustainable Development

Awareness of the world's finite resources and the urgency with which science and technology are being employed to tackle the problems of climate change and energy use, have given rise to a new era of academic focus – Energy and Sustainable Development. KTH approaches this broad and critical area by encouraging a cross-platform selection of programme studies.

Master's students have the option to customize their degree, choosing courses from a variety of fields: energy, biotechnology, architecture, ICT and many more. There are also unique Master's programmes available, like those offered by the European Institute of Innovation and Technology and the prestigious Erasmus Mundus,

in which the university plays a central role. Our international network of partner universities and research facilities provide collaboration opportunities with other top facilities in Brazil, China, India and the U.S., and Master's students can look forward to interaction with global industry specialists like Skanska and ABB, bridging the gap between education and career objectives. All of these opportunities mean work with the latest technologies and global perspectives in the students' particular area of focus – a breadth of knowledge extending far beyond the confines of the classroom.

Future Career Opportunities

As Energy and Sustainable Development covers a wide spectrum of programmes, the career opportunities

are abundant. All areas of business and industry – ICT, infrastructure and urban development, industrial engineering and energy – will increasingly depend on the ability to be competitive and environmentally responsible in a rapidly changing marketplace. Inclusion of successful energy and sustainability protocols will be a determining factor in the success or failure of future businesses. As a leading institution in this area, KTH recognizes the importance of helping to define the next generation of ecologically relevant innovations, and our strong reputation will also elevate those choosing a degree in these fields.

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Graham Aid

Researcher R&D for Ragn-Sells AB, Sweden, PhD candidate in Industrial Ecology

I COME FROM THE U.S. and have the unlikely background of first obtaining a BSBA degree in international business. I found that the studies only revolved around promoting profit, with very limited social or economic responsibility. I then researched which countries have a strong reputation for environmental science, energy research and sustainable development and Sweden was at the top of the list. KTH has been a fantastic environment, helping me to

develop my academic focus and has led to an interesting and successful career.

I did my degree project and was offered a job right away, with Ragn-Sells AB – the largest environmental services provider in Sweden. My focus is in the entrepreneurial development division of the company; we work to create new recycling and biofuel applications in conjunction with major industries. My interests are thermo-chemical techniques, design for recycling and industrial symbiosis.

KTH really emphasises a 'hands-on' approach to knowledge – applying what is learnt in the classroom and labs. So, when you find yourself in a career relating to your field, the transition is easier than most universities would offer. Also, industrial recruiters are right here on campus, often working with the students as they develop their research and ideas. You don't have to look very hard to find work after your KTH degree.

Life Science Technology

KTH understands the importance of breaking down barriers in both education and research, encouraging academic focus to involve an interdisciplinary selection of programmes. Life Science Technology adheres to this approach and promises Master's students a rich and varied educational experience – one that will benefit their personal career goals.

Life Science Technology is a platform encompassing a multitude of areas: medical and biomedical technology, computational biology, chemical engineering and molecular science, among others. All courses under this umbrella aim to achieve the goal of producing valuable work between the interconnected areas of technology, natural science and medicine. KTH also has the advantage of many ongoing

partnerships, as with the Karolinska Institutet, helping to provide some of the most important medical advances in the world. This is a crucial field for the future of health care and how we as humans are better able to tackle diagnosis, disease treatment and quality of life. KTH offers a uniquely diverse course selection to accommodate an individual's area of interest, forming a collective basket from which Master's students can choose how they wish to develop and grow – the only limits of scope are determined by the students themselves.

Future Career Opportunities

Life Science Technology programmes at KTH are diverse but intrinsically linked, providing students with the university's close connections to industry and further research work, on a

global scale. Large pharmaceutical companies now increasingly turn to universities like KTH for new innovations, with the number of smaller biotech companies in Sweden having tripled in the last ten years. The need for new, creative medical technologies is one facet of a broad spectrum of career applications available to Life Science Technology students. This field, among many others devoted to human health, will continue to grow in importance as an aging and expanding population creates the challenge of supplying better treatment, technologies and health care for the future.

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Balachander Chokkalingam

Master's student in System, Control and Robotics

THE FOCUS OF MY Master's degree involved interdisciplinary programmes in Electrical Engineering and Computer Science – specifically Systems, Control and Robotics. With my coursework now completed, I am finishing my degree project by working at Tobii – leaders in the new area of eye-tracking computer technology. I came to know about Tobii from career fairs held at KTH and I think that the skills I have gained in the last year and a half have definitely contributed to my

degree project; being a KTH student enabled me to get involved in the Tobii project in the first place.

The projects, assignments and labs at KTH are very well designed. I have always felt comfortable learning a subject by actively applying the knowledge. The courses are well taught and we have our exams scheduled twice or three times a year, so there is practically no exam stress – with learning being the main motive. My course was also very flexible,

where we could choose what we wanted to do; we could tailor make our Master's degree.

Both education at KTH and life in Stockholm has put me on the right track. I am now more confident to collaborate internationally and having a KTH Master's degree has already created many opportunities. Coming to KTH has been a very good decision for me – I have enjoyed meeting people from all over the world, had fun in their company and have learnt a lot from them.

Information and Communication Technology

KTH has an internationally acclaimed reputation in the area of ICT, leading in research, education and ingenuity. Master's programmes are available in English and cover the entire spectrum of the field, focusing on nanoelectronics, photonics, electronics, computer systems, software technology, communication and cognitive sciences. With excellent, modern facilities available for both lessons and research applications, KTH has roughly 2,000 full-time students currently enrolled in ICT programmes, with 45 professors and 30 associate professors specializing in the field.

KTH research in ICT is notably strong and it is ranked among the best in the world, with the university securing high marks from international experts for its breadth of focus and consistent

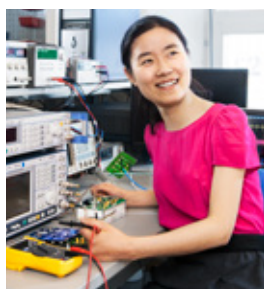
quality. Research is spread across five strategic platforms – Energy, ICT, Materials, Life Science Technology and Transport – and funding comes from a myriad of sources including the European Union, Swedish Research Council and private companies, making KTH one of the most competitive in Europe for securing funding. The ICT campus in Kista is surrounded by one of the world's largest ICT clusters, providing Master's students the unique opportunity to apply their knowledge in the heart of the industry.

Future Career Opportunities

KTH has many ICT industry ties, ensuring that Master's students can successfully move from the world of academia into a successful career. KTH Kista is located just outside of central Stockholm and is surrounded

by roughly 1,400 companies, including global brands like Ericsson, Microsoft, IBM, Intel and many more. Here you will find the headquarters for most of the leading ICT businesses in Europe, with Kista ranked among the top five in the world for innovations in telecommunications. Master's students will benefit greatly from this proximity to international leaders in ICT, and they in turn, look to KTH to supply the talent and ideas for the future.

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Qin Zhou

PhD student, Information and Communication Technology (ICT)

I FEEL PROUD OF my PhD studies here in the iPack Center and it is quite inspiring to work with so many distinguished professors, senior researchers and other talented PhD/Master's students. We are devoted to developing ultra-low power wireless communication systems and innovative printed electronic systems – which are cutting-edge research projects aiming towards the future.

KTH is a very international university and it provides an

extremely open and inclusive study environment. As a student at KTH, we often have opportunities to attend industry-academia joint seminars and participate in joint research projects, filling the gap between universities and industries. This eases students into the job market. As a female PhD student in the ICT area, I especially feel that equality and gender balance is strongly advocated here in Sweden, no matter which school or industry. My PhD studies at

KTH have created a solid foundation for my future profession. The university provides a holistic and interactive education, giving students the ability to independently think and innovate. We learn not only how to solve a problem but also how to find a problem. These skills have been a great help in improving my presentation and communication skills, and enlarging my professional network.



General Information

For further information, visit:
www.universityadmissions.se

Admission Requirements

A completed Bachelor's degree, corresponding to a Swedish Bachelor's degree of 180 ECTS, or equivalent academic qualifications from an internationally recognized university is required for admission to a Master's programme at KTH. In addition, programmes may have specific entry requirements that must be met – a Bachelor's degree in Science or Engineering is required for most programmes.

Prospective Master's students must also provide proof of English proficiency equivalent to TOEFL 90 IBT (written test minimum 20) or IELTS 6.5. Note that admission requirements and procedures are subject to change; please check the relevant requirements online before submitting an application: www.kth.se/en

Application Procedure and Deadlines

All KTH Master's programmes have one entry per year and the autumn semester starts in late August, the application for the 2015 entry will open mid October 2014 and close mid January 2015. The application is web-based and coordinated by the Swedish Council for Higher Education (UHR) on the following website: www.universityadmissions.se

Please note that the admission requirements, fees, application procedures and deadlines for the Erasmus Mundus and EIT programmes differ from the application process for the regular Master's programmes.



Services for International Students

KTH understands that students coming from abroad may require extra services when they arrive on campus, and our aim is to help you feel as comfortable as possible when settling in. With this in mind, KTH provides students with a full range of support including student counselling, an international student information desk, a student union and alumni associations. KTH also offers accommodation support for tuition fee-paying students and non-EU scholarship holders.

Fees and Scholarships

For citizens of a country within the EU/EEA or Switzerland, application and tuition are free of charge. For students from non-EU/EEA countries, programmes and courses within all subject areas, except for Architecture, cost SEK 145,000 per academic year. Programmes and courses within the subject area of Architecture cost SEK 245,000 per academic year*. The tuition fee will be charged in advance and there is also an application fee of SEK 900, which must be received by the deadline in order for the application to be processed.

KTH offers a number of tuition fee waivers; these are aimed at specially qualified students from non-EU/EEA/EFTA countries. For further information about tuition fee waivers and other scholarships, please visit: www.kth.se/en or www.studyinsweden.se/scholarships.

*Please note that the above fees apply to the 2014/2015 academic year and are subject to change.

Stockholm – A Beautiful, Cutting-Edge Capital

As a KTH Master's student living in Stockholm, you will be part of one of the most dynamic and enterprising cities in Europe. Routinely ranked in the top ten in the Global Innovation Index, Sweden and its capital are recognized around the world as an important creative and technical hub, and a fantastic place to put your learning into practice. As is the case with KTH's philosophy regarding education, Stockholm encourages the best and brightest ideas to develop and flourish.

International technology magazine, Wired, recently featured Stockholm as one of the "hottest" start-up cities in Europe, beating both Paris and Berlin as a key investment centre for global venture capitalists. The list of pioneers in this cutting-edge world is growing every month – from exciting new advances in telecommunications and revolutionary apps, to valuable market research tools and soon-to-be universal e-commerce payment models. The pool of talent and innovative ideas in Stockholm seem inexhaustible; the city is a place bursting with ingenuity, entrepreneurial spirit and an industry infrastructure helping individuals to fully realize their potential.

Besides being a leading light in the world of high technology, Stockholm and KTH are also a breeding ground for engineering talent that global leaders like Scania and ABV are reliant upon, employing many graduates every year from the university. These companies are continually working closely

with KTH to ensure that students are able to secure excellent jobs in their chosen field, and they in turn, are able to continue their successes.

Beyond academia, Stockholm also offers KTH students a beautiful, culturally diverse environment, fusing many of the best aspects of Europe into a safe and clean capital; the population are adept at speaking English and Stockholm is considered one of the world's most livable cities. This last acknowledgement may have something to do with the blend of Stockholm's stunning natural surroundings and a bustling, modern centre. Composed of seven islands, and hundreds more in the archipelago, Stockholm's inhabitants are understandably very appreciative of their natural environment and take full advantage of its diversity – utilizing the clean air, proximity to water and unspoiled woodlands in every season. And for those desiring a more cosmopolitan, urban experience, there are unlimited activities for KTH students to enjoy in the city, with a myriad of cafes, art galleries, theatres and restaurants offering endless options for free time outside of studies.

From being the home of the Nobel Prize, to its continuous contributions in the world of technology and engineering, groundbreaking research and new, cutting-edge ideas, Stockholm and KTH afford Master's students an unparalleled environment to pursue their higher education – in one of Europe's most formidable universities, and cherished capital cities.

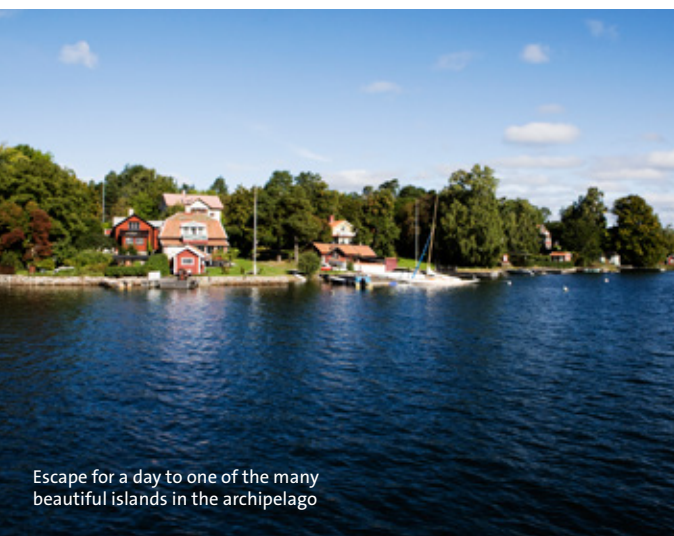
Routinely ranked in the top ten in the Global Innovation Index, Sweden and its capital are recognized around the world as an important creative and technical hub, and a fantastic place to put your learning into practice.



The campus at Kista Science City is surrounded by hundreds of the world's leading technical businesses



Stockholm is always alive and buzzing with exciting activities



Escape for a day to one of the many beautiful islands in the archipelago



Graduates of KTH accept their diplomas in Stockholm City Hall, where the Nobel Prize is awarded every year



It's always easy to enjoy the fresh air around the city



Stockholm is considered one of the world's most livable cities

